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ABSTRACT

This article reports on a three-phase study that examined the relationship between earning power and the successful completion of a program of study at an unidentified community college. In the first phase, researchers interviewed the state legislators from the community college's home county and asked them their beliefs on this relationship. In the second phase, researchers examined student transcripts and state income records to determine if there actually was a relationship between education and earning power. In the third phase, the state legislators' perceptions were compared with the results of the wage record and program completion data analysis to determine the accuracy of the legislators' perceptions. Conclusions from the study include: (1) the perceptions that were held by the legislators concerning the degree to which the community college impacted their state, the local economy, and individual earning ability were based more on a belief than on quantifiable data; (2) the college proved to be a major source of secondary jobs for both the county and state; and (3) program completion at the college had a positive impact on the earning power of its program completers. (Contains 23 references.) (KP)

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The Reality of Perceptions:

The Future Earning Power of Community College Students

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Abstract

Is a person's earning power positively affected by completion of a course of study at a community college? The answer to this question may be a significant consideration for state legislators examining the role of community colleges. This article reports on a three-phase study that examined the relationship between earning power and the successful completion of a program of study at a community college. In the first phase, the researchers interviewed the state legislators from the community college's home county and asked them their beliefs on the relationship between earning power and completion of a community college program of study. Then, the researchers examined student transcripts and state income records to determine if there was a relationship between education and earning power. In the third and final phase, the state legislators' perceptions were compared to the results of the wage record and program completion data analysis to determine the accuracy of the legislators' perceptions.

The Reality of Legislative Perceptions:

Earning Power of Community College Completers

Economic impact studies can be valuable to community college administrative and faculty leadership because they provide comprehensive data that can be used effectively for political and budgeting purposes. Without such studies endeavors to achieve greater local and state appropriations will be handicapped by the lack of tangible and reliable information on measurable economic return on investment expected from dollars invested in community colleges (Ryan, 1985).

Caffrey and Isaacs (1971) developed a guide for determining a college or university's economic impact on a specific geographic region. The guide enabled the user to construct a cost/benefit ratio that measured this impact on its local community. Though this economic research guide originally was intended for four-year colleges and universities, much of its early application occurred in community colleges.

Studies in the 1970s and 1980s applied aspects of the Caffrey and Isaacs' model to particular community colleges or community college systems (Selgas, 1973; Andrew & Wellsfy, 1977; Bess, 1980; Turiciano, 1980; Kinnick, 1982; Brookdale Community College, 1983; Romano & Herbert, 1985; and Kiser, 1988). Several of these studies were used primarily for public relations purposes in that they were undertaken to improve the individual college's image by demonstrating the contribution that the college made to its local economy.

In the 1990s work by Andrews and Lillibridge (1990) showed that such economic impact studies could document a college's positive economic impact on an entire state. Other studies in Michigan and Arizona reported similar findings. Johnson's (1994) economic impact study reported on a single institution's effect on multiple Texas counties. Researchers also have

compared the economic impact of community colleges in different states (Singleton, 1994). Once again these studies appear to have been undertaken to improve the college's image rather than to enhance its state and local funding.

Rouse (1992) declined to use a geographic economic impact model and opted for an individual economic benefits model that increased the impact of the educational process on salary. Rouse's work calculated the returns to the individual after gaining the education and the benefits to the community by having a better-educated citizenry. Beckmann (1996) used a similar study design and examined the net economic impact of Colorado vocational education programs and the wages earned by the student upon program completion.

In recent years, some researchers have undertaken economic impact studies for purposes of briefing legislators about the benefit of community colleges to their local areas (Zeiss, 1986; Caswell, 1988; Leslie & Brinkman, 1988; Brann & Baldwin, 1997). Saleh (1988) reported on the relationship between state budget reductions for community colleges and their effects on the local area economies.

Need for the Study

To date, no studies have been reported that compare economic impact data derived from these models inspired by Caffrey and Isaacs (1971) with the perceptions of state legislators representing a specific local community. Additionally, no studies have combined economic impact studies with human capital studies and then compared those data with legislator perceptions. As state policy makers focus more on institutional and program effectiveness, economic impact studies, integrating economic impact and human capital developed could assist in educating local citizens and state legislators about the economic and human capital value of community colleges. The development and dissemination of these data will help community college leaders in serving and expanding state funding for their institutions.

Objectives of the Study

The objectives of this study were four fold. First, using an economic impact model the researchers determined the short-term economic impact of one community college on the local and state economy. Second, wage-record data were used to determine the impact program completion had on students' earning power. Third, in-depth interviews with state legislators were conducted to determine their perceptions of this community college's economic value to its service area and state, and the effect program completion had on students' earning power. Finally, data gained from the legislator interviews were compared to data obtained from the economic models to determine if legislator assessments were consistent with the economic models.

Methodology

Initially, Ryan's (1983) modification of the Caffrey and Isaacs model was implemented to quantitatively determine the short-term economic impact of this community college on its respective county and state. The study used the actual community college budget for academic year 1999-2000 year. Next, wage record statistics on student program completers for years 1996, 1997, and 1998 were gathered through the state's department of employment. These data were used to determine quantitatively what long-term economic impact the college had on the earning power of its degree and certificate completers.

Next, in-depth interviews were conducted with the county's state legislative delegation to ascertain their perceptions of the college's short-term and long-term economic impact on their county and state.

Finally, the legislators' perceptions were compared to the short-tem and long term economic impact models results.

Site and Participants

The community college studied is the largest comprehensive community college in a western state. It is governed by an elected board of trustees and operates under the purview of a state coordinating commission for the community colleges. This community college receives approximately 60% of its funding from the state. In 1995 the college entered into a memorandum of understanding (MOU) with the state's department of employment to share data concerning its program completers. The project merged graduation data from this community college with wage record data from the department of employment to allow the college to gain accurate information about graduates' employment and wage history within the state.

The study population was comprised of those students who completed a program of study at the college during the years 1996, 1997, and 1998. Their employment wage history was tracked for up to twenty-six (26) work quarters prior to completion of college and continued for no fewer than eight (8) quarters after graduation. Because many factors other than education can influence earning power, a stratified, random control group was also selected for each graduation year from the general workforce and controlled for age and sex.

The initial data gathered compared the community college's program completers, those students obtaining an associate's degree or program certificate, with the entire state workforce, controlled for gender and age.

The community college's home county has a twelve-member delegation serving in the state legislature. Eight serve in the state House of Representatives and four serve in the state Senate. The House members are elected for two-year terms while Senators are elected for four- year terms. Individual tenure for the legislators interviewed ranged from newly elected to eighteen years. The mean tenure is 8.08

years, while the median is 8 years. The delegation is comprised of nine men and three women all of whom are Caucasian.

Wage Record Data

Impact data concerning the college's economic impact on the county and state were developed using the impact analysis model developed by Ryan (1983, 1985). This particular tool has been accepted as accurate and reliable for quantifying a community college's impact on its local and state economy (Two-year College Committee of the Eastern Association of College and University Business Officers, 1989; Andrews & Lillibridge, 1990; Lillibridge, 1995).

Information concerning program completers' earning power was developed through state wage records, and the population was limited to those students who successfully completed a one-year certificate or associate degree.

Data indicating the impact that education has on the earning power of college graduates were obtained from the state's department of employment, research and planning division. These data were obtained by matching wages and social security numbers of completers each of the three identified years. The students who were located in the state's wage records were tracked over subsequent reporting periods and wage differentials were identified between workers who attended this community college and those who did not. The wages for these two groups were compared to show the impact that investing in a community college education had on the student earning power.

The researchers identified student earning power prior to attending this community college, while attending college, and after leaving college. This community college cohort was compared to the non-community college cohort to show the actual wages earned while attending school and the impact on earnings after leaving school. The earnings were reported quarterly so figures showed

how many quarters it took these student completers to surpass the earning power of non-college workers.

Legislator Data

State legislator perceptions were gained by interviewing the twelve legislators elected from the college's home county. These twelve individuals constitute the entire county delegation. Because of the small numbers involved the elected officials requested confidentiality in their responses and, therefore, were treated as one group rather than as Representatives and Senators. Though this resulted in the researchers' inability to differentiate between the perceptions of Senate and House members and the perceptions of democrats and republicans, it provided the legislators with the confidentiality requested and made it more difficult to identify individual responses.

The interviews were conducted between November 30, 2000, and January 31, 2001, the period of time immediately after the 2000 general election and prior to the start of the following legislative session. This time frame was chosen because it allowed for the current legislative delegation to be identified by the voters, yet was early enough for them not to have had their perceptions influenced by the lobbying associated with a typical legislative session.

All interviews were transcribed verbatim and a quality-reliability check indicated that the transcripts were accurate and reflective of the interviews and thus were reliable. Each legislator was asked a series of questions that were designed to identify and record his or her individual perceptions about the various ways that this community college impacts the city, county, and state economies. In addition legislators were asked whether they believed that completing a degree or certificate at the community college made a difference in the student's ability to get a job and to discuss their perceptions concerning the relationship between completing a degree or

certificate at this community college and increased earning potential or the return on the student's investment in college. The legislator interviews were coded using HyperRESEARCH©.

Each interview was designed to probe similar information as that gathered by the economic impact analysis models and the wage differential model. By the fact that data developed from the models were applied to the revenue sources from each contributor (state, local, and student) to indicate return on investment, each interview also included questions designed to determine the perception of the legislators on those subjects. The interviews of each legislator were transcribed to preserve the rich discussions and to allow for better qualitative coding and subsequent analysis.

Results

Earnings Comparison

Two years or eight work quarters after students in the 1996 cohort completed their associate's degree or program certific[illegible]ntered the state labor market, their two year average composite earnings were $39,240 thus an annual average income of $19,620. The control group measured over that same time period recorded two year earnings of $30,522 thus an annual average income of $15,261. The increase in earning power for the community college completers represents an adjustment in earning power of 56.7%. For the control group, that increase in earning power was 32.9%. The value added to the student completer earning power in 1996 during the eight quarters after completion was $8,718.

The 1997 program and degree completers averaged two year composite earnings of $36,323 for an average annual salary of $18,161.50. The control group earned $33,458 during the same eight quarters for an average annual income of $16,729. The increased earning power for the cohort of degree and program completers represents an increase of 43.9%. The increase

for the control group was 37.3%. Though the difference between the two groups was less for the 1997 completers than for the 1996 completers the value of obtaining a degree was $2,865 after two years.

The 1998 program and degree completers had two year composite earnings of $45,885 for an average annual income of $22,942.50. The control group earned $35,464 for the same two-year period for an average annual income of $17,732. The increased earning power for those completing degrees or certificates represented a 45.0% enhancement. The control group wages increased 27.4% over the same period. The impact on earning power for those student completers in the 1998 cohort represents an increase of $10,421.

When the three cohorts completing degrees or certificates are treated as a single cohort, they earned a two year composite average of $40,913 or an annual average income of $20,456.50. When the control groups are also treated as a single cohort, their combined earnings for the same eight quarters of work averaged $33,243 for an average annual income of $16,621.50. The increase in the income for the college completers group represents an increase of 49.2%. For the control group the wage variance is equal to a 30.7% increase. The positive impact to the earning power for students completing a degree or certificate at this community college averaged $7,670. The above data indicate that completing a college degree or certificate program at this community college does have a positive association with student earning power.

Legislator Perceptions and Comparisons

The interview data analysis produced five levels of benefit that the legislators ascribed to completing a degree or certificate program at this community college. The categories of legislator perceptions were classified as follows:

1. Clear and Convincing Benefit-The legislator believed that there was a definite benefit.
2. Graduated Benefit-The legislator believed that there was a benefit, but the benefit could be influenced by variables such as program and length of study.
3. Qualified Benefit The legislator believed there was a benefit for some people but not necessarily an equal benefit for all who attended.
4. Improved Job Skills-The legislator believed that the community college provided an avenue for students to improve their job skills and either get a job or advance in their current position.
5. Small Investment-The legislator believed that the cost of attending a community college in this state was minimal; therefore, it was easier for students to realize a return on their investment.

Nine of the twelve legislators expressed their belief that education enhances one's earning capacity to such a degree that they were classified as *clear and convincing;* however, much as they believed in the value of completing a degree or certificate program, not one of them offered an estimate as to how much that benefit might be worth. Their responses to the question asking for the their opinions on whether community college education definitely enhanced one's earning capacity were rather general in nature: "Absolutely!" retorted two of them; others used phrases that included: "There is no question about that"; "Of course it does"; "Yes, that is certainly true"; and "It's a big elevation."

Still several others while giving longer responses gave very little information concerning how much more a community college education would entitle the completer in the work world:

> I feel strongly it improves your opportunity to make more, and it improves your chances of getting a job. (Legislator Three)

> I think there certainly is, because if you get an associate's degree, it's going to help you get a job that pays more money. (Legislator Eight)
>
> That in return means a better salary for those people than they would have had [had they not completed a program or degree at the community college]. (Legislator Nine)
>
> I believe it is a good deal. (Legislator Twelve)

The legislators believed that there was a *clear and convincing* benefit to completing a degree or program certificate, but there was no specific illustration of what that benefit really meant in terms of actual dollars in earning power.

Six legislators provided dialogue that clearly identified a belief in a *graduated benefit* to completing a degree or program certificate. They further indicated that earning power most likely was affected positively by simply attending the community college and believed that the more education a person acquired the more that person's earning potential increased. Some of their comments included the following:

> I think that there is the general expectation that when students go to college, they are going to have a better paying job. (Legislator Two)
>
> Obviously, the higher they go up in their education the better their earning capacity is going to be. (Legislator Ten)
>
> I'd say we would be comparing a high school graduate's income against an associate's degree or even in some cases bachelor's degree, and in some cases even higher degrees .... I would guess you are on the order of 10% or greater for each on of those steps....Each step completed in your higher education would lead to nominal say 10% increase in earning potential. (Legislator Seven)
>
> I have a thing set up that shows the progression in the nursing area, where the CNA people get a dollar or two above the minimum wage, add another couple dollars, almost up to the state average wage, for the people that are LPNs and then for the one's that get an RN training you're going up fifteen or twenty dollars an hour probably.... And that kind of progression holds for a whole lot of different occupations that in this day and age somebody, particularly somebody just starting out with just a high school degree is likely to not do very well until they acquire some skills that you get at [this community college]. (Legislator Eleven)

The legislators demonstrated their belief of a *graduated benefit*, explaining that an increase in education was correlated with an increase in salary. Some legislators attempted to place a

specific percentage to each degree step but admitted they had no specific data to support their figures. Then, too, there was one example that some professions have a built in vocational ladder within their profession that evidenced in this one legislator's mind that the more education and responsibility an allied health student acquired, the more salary that could be expected in return.

The smallest group of legislators offered statements that reflected a belief in a *qualified benefit* to those completing a certificate or associate's degree. Individuals in this group seemed to indicate that there might be a monetary benefit to students completing a degree or certificate, but they offered some type of qualification for their position. They were reticent to deny the value of higher education, but they also wanted to allow for potential benefit. Persons in this group couched their answers in terms like "as a general rule" and "stands a better chance."

> As a general rule, they would make more money.... They would also stand a better chance of getting employment.... It would increase their chance of getting a job over someone that didn't have the education. (Legislator Three)
>
> I do not know exactly how much they're paying, but I believe it to be a good deal. (Legislator Twelve)
>
> From what I hear it's got to be one of the better deals. (Legislator Ten)
>
> Even the non-brightest student realizes that a student loan, a very small student loan, is repayable within a very short time frame should he become successful in his educational endeavor at [this community college] or wherever. (Legislator Five)
>
> Some are probably benefiting a lot more than others depending on what course they take and what the demand is for that at the time. (Legislator Three)

Five legislators discussed their beliefs in the community college's role in providing opportunities for *improving job skills*. Some spoke of specific programs of which they were aware either because of media coverage or first hand knowledge as business owners. They clearly discussed the positive impact that the college has with dislocated workers and in training employees for new businesses in their statements here.

> Specialized training as we mentioned with [community-specific companies named] and there's also the crafts area where you can get into diesel mechanics and welding and then some of the specialty skills like nursing and the technology lab for how you help handicapped people survive at home or survive better at home. Those types of educational things are really good for students. (Legislator Four)

> ... students who insist on their right to go enhance their educational abilities are essentially either looking to improve their capabilities in the job that they are currently in or they choose to seek another career. (Legislator Two)

> They come out in an area or a field where they can go into the workplace and be an asset to the company from the get-go, rather than trying to train them from day one up to where they need to be at the time they walk out of the college. (Legislator Nine)

> So, there are things even if you get a job that are not directly related to your degree sometimes you know, sometimes that degree still helps you get the job. (Legislator Three)

> It means a better product for our company or for any other company because you've got someone that's already trained and available that you don't have to bring through all the steps to get them where they are a productive individual, to make you some money, to further your business. (Legislator Nine)

> I think that the college makes a terrific impact in returning students, who have been dislocated from their jobs.... They see they're not going to get any further without additional education, or displaced homemakers for instance who maybe haven't been in the market place but need to be in the market place, and the way they can get there is through additional education. (Legislator Two)

Interestingly, the legislators were aware of not only the customized training education their community college provided but also the education and training for the displaced worker and displaced homemaker. And while they could not clearly articulate its full meaning, there was an awareness of the value of an associate's degree and the general education that it brought to its recipient and future employer.

The final legislator belief identified ascribed a benefit to students because of the low cost associated with attending the community college. Here are some of the legislators' perceptions on a *small investment* for the benefit:

> I think statistically, it costs way more to educate a student than tuition [actually covers]. (Legislator Two)

> With [this state's] tuitions being as low as they are, the raw cost of education to an entry-level student at a community college in [in this state] is seriously undervalued. (Legislator Five)

> Having that opportunity to do it at probably one of the lowest cost levels in the country would have to make it available to a greater percentage of the students, and particularly local students.... They're paying roughly 17% of the total cost. (Legislator Ten)

> I believe (the cost) to be a good deal when compared with other higher education institutions. (Legislator Twelve)

Clearly, the state legislators believed that the tuition paid by the student for their community college education was a definite bargain because they perceived it to be very low as weighed against their perceptions of the benefits the students reaped in return.

The researchers acknowledge that the beliefs of the interviewed legislators may be challenged on a variety of grounds. However, the validity of their beliefs lies beyond the scope of this study. The legislators beliefs are offered to establish and confirm the perceptions held by them. The mere subscription to such beliefs is more than significant given the fact that this is all any legislator or individual may rely upon in making a comprehensive assessment of the economic value of public good such as education,; health care, and the criminal justice system.

Conclusions

Based on the qualitative and quantitative data developed and presented in this study it is possible to draw certain conclusions.

1. The perceptions that are held by these legislators concerning the degree to which this community college impacted the state and local economies are based more on a belief than on quantifiable data.
2. The perceptions that are held by the legislators concerning the impact that the college has on individual earning ability are also based more on belief than quantifiable data.

3. The data generated by the economic impact analysis model provides seems to indicate the value this community college has to both the state's and county's economies.
4. The economic impact model clearly indicates that the college is a major source of secondary jobs for both the county and state.
5. The data generated from state's wage records provide direct evidence confirming program completion at college has a positive impact on the earning power of its program completers.

Community college leaders need to communicate the economic impact their respective colleges have on their local and state communities to their respective legislative delegations. However, many community colleges have not taken the time or made the effort to gather hard data, which their legislative delegations can use in arguing for increased funding for their respective colleges and their state community college system. Clearly the application of an economic impact model can be an effective tool in making these data available in a very understandable and usable format.

In addition by determining what beliefs are held by a respective community college legislative delegation the community college leaders are able to plan more effective ways to educate their local legislators. This study has shown that these particular legislators are at different points on a continuum of understanding how much economic impact their community college had on their local community, their state community, and on the program completers from their community college. It is a good place to begin the dialogue on the economic impact community colleges have on their respective communities.

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